

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended): A wafer pre-alignment apparatus comprising:

a wafer rotating member capable of rotating a disk-shaped wafer held on a table having a vertical rotating axis;

a rotation detecting member for detecting a rotating position of the wafer rotating member and converting the rotating position detected into an electric signal;

a light emitting member for emitting light toward the periphery of the wafer held by the wafer rotating member;

a CCD linear sensor including a large number of pixels linearly arranged in a predetermined order, for reading out stored charges successively from the first pixel according to a transfer pulse signal and successively outputting stored charges of all the pixels as electric signals;

a signal processing member for repeatedly detecting the edge positions of the wafer at a plurality of optional points over the outer periphery of the wafer when it receives a signal from the CCD linear sensor and a signal from the rotation detecting member and storing these edge positions thus detected in a memory, and acquiring at least one of an orientation-flat position, notch position and center position of the wafer on the basis of the edge positions detected;

an up-down counter for counting signals received from the rotation detecting member;

a measured angle setting register for storing angular value information which is obtained by dividing the number of counts during a single revolution by the rotation detecting member by the number of measurement points during the single rotation; and

a comparator for comparing the angular value information set in the measured angle setting register and the counted value of the up-down counter,

wherein the apparatus is operable to sequentially load data without stopping the motor.

2. (Currently Amended): In a wafer pre-alignment apparatus comprising:

a wafer rotating member capable of rotating a disk-shaped wafer held on a table having a vertical rotating axis;

a rotation detecting member for detecting a rotating position of the wafer rotating member and converting the rotating position detected into an electric signal;

a light emitting member for emitting light toward the periphery of the wafer held by the wafer rotating member;

a CCD linear sensor including a large number of pixels linearly arranged in a predetermined order, for reading out stored charges successively from the first pixel according to a transfer pulse signal and successively outputting stored charges of all the pixels as electric signals; and

a signal processing member for repeatedly detecting the edge positions of the wafer at a plurality of optional points over the outer periphery of the wafer when it receives a signal from the CCD linear sensor and a signal from the rotation detecting member and storing these edge positions thus detected, and acquiring at least one of an orientation-flat position, notch position

and center position of the wafer on the basis of the edge positions detected,

a method for wafer pre-alignment comprising the steps of:

setting, in a measured angle setting register, angular value information which is obtained by dividing the number of counts during a single revolution by the rotation detecting member by the number of measurement points during the single rotation;

inputting a signal supplied from the rotation detecting member in an up-down counter up-counts during normal rotation of the wafer rotating member and down-counts during reverse rotation of the wafer rotating member;

if the comparator determines that rotation position information obtained as a result of an increase/decrease of the counted value in the up-down counter during the rotation of the wafer rotating member is equal to the set value in the measured angle setting register, zero-clearing the counted value simultaneously with outputting of a measurement command,

repeatedly detecting the edge position of the wafer at the measurement points over the outer periphery of the wafer;

storing detected values thus obtained in a memory; and

acquiring at least one of an orientation flat position, notch position and center position of the wafer,

wherein the apparatus is operable to sequentially load data without stopping the motor.